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Observations of α Centauri. By R. L. J. Ellery, Esq., F.R.S.

As I see in the *Monthly Notices* that Mr. Marth has urged observations of α *Centauri* at the present time, I subjoin the results of our observations of this Binary.

From measures obtained in March and April 1877, the distance of the components appears to be 3″·3 and the position 69°·1. In 1862 the position was 0·0, and distance 10″, since which time the position angle appears to have gradually increased, the distances obtained ranging from 10″ in 1862 down to 8″ in 1874, with an indication of a maximum about 1868.

The close proximity of the components at present, combined with their great brightness, render accurate measure of position a very difficult matter, and also, no doubt, interferes with very precise distance measures. Further measures shall be made, and the results forwarded to the Society.

The following are the only measures recorded at this Observatory:—

	Dist. ″	Pos. °
1863·75	8·5	5·2
1864·72	8·1	...
1868·17	9·2	...
1868·18	9·6	...
1870·65	10·2	...
1873·16	8·3	...
1874·15	8·0	30·5
1876·61	4·5	50·1
1876·62	3·8	52·0
1876·94	4·5	51·2
1877·19	3·3	69 1
1877·21	3·4	
1877·28	2·8	
1877·28	2·98	
1877·28	3·16	

Each result is the mean of from 6 to 10 measures of distance, and from 2 to 10 of position.

The table below gives the position and distance as deduced from our Transit Circle observations of α^1 and α^2 *Centauri*, and although they can scarcely be taken as so accurate as the micrometer measures, they indicate the movement of the system with considerable precision.

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Angle of Position and Distance of α^1 *Centauri* with regard to α^2 *Centauri*, from Melbourne Transit Observations.

Year.	Dist.	P.	No. of Measures.
1862·47	...	0	3
	″	°	
1865·56	9·95	17·3	1
1868·51	11·02	21·8	5
1870·65	10·45	24·7	3
1871·51	9·41	24·2	1
1872·55	10·36	24·1	1
1875·94	6·68	39·3	1
1876·90	4·94	64·3	1

Melbourne Observatory,
1877, *April* 17.

On the Collective Light and Distribution of the Fixed Stars.

By John J. Plummer, M.A.

The object of the following paper is to determine within fair limits of approximation the total illuminating power of the stars as compared with some acknowledged photometric standard. In endeavouring to do this I have been led to certain considerations regarding the distribution of the stars in space which are not in accordance with the theory so ably enunciated by Mr. Stone in the March No. of the *Monthly Notices*, but point to a more complicated structure of the sidereal universe. Although readily obtainable from existing data, these remarks may not be the less interesting to the fellows of the Society, as I am not aware that they are to be found elsewhere.

The numbers of the stars of each magnitude are now known with great accuracy for the northern hemisphere, from the careful analysis by Littrow of Argelander's *Survey of the Northern Heavens*. Nothing more satisfactory could be desired as regards the enumeration of the stars. The photometric value of Argelander's scale of magnitudes has been investigated by Pogson. The light-ratio determined by this observer is 2·512, but it will be sufficiently approximate to assume the first decimal place only as accurate. Further, it does not seem possible to fix any inferior limit to the magnitude of the stars which contribute towards illuminating sensibly our Earth, because it is well known that those which individually are too faint to affect the retina of the eye, when congregated in sufficient numbers, become distinctly visible as hazy light; and it would appear that every star, however small or isolated, must aid in the general illumination of the heavens in proportion to its apparent lustre.

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